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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,174	07/28/2003	Hans Wilfried Peter Koops	8183	5591

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EXAMINER	
OLSEN, ALLAN W	

ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,174	KOOPS ET AL.	
	Examiner	Art Unit	
	Allan Olsen	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *42 and 44-68* is/are pending in the application.

4a) Of the above claim(s) *42 and 44* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

In response to applicant's telephone call of June 6, 2007 regarding the last Office action (see interview summary) the following corrective action is taken. Specifically, the following Office action is sent to replace the clearly erroneous action that was mailed on April 5, 2007. The examiner apologizes for the previous error and the overdue remedy.

The period for reply of 3 MONTHS set in said Office Action is restarted to begin with the mailing date of this letter.

Election/Restrictions

Claims 42 and 44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 4, 2005.

Claim Objections

Claim 67 is objected to because of the following informality: "mulit-jet" should read --multi-jet--. Appropriate correction is required..

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 46-48, 58, 61, 63-68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 46 and 68 each recite, "said reaction products" (in claim 46, step d, line 3 and in claim 68, step f, line 4). There is insufficient antecedent basis for this limitation in the claim because this refers to a previous recitation of "a reaction product" in the singular rather than plural "reaction products".

Claims 63 and 64 each recite "wherein the initial step". There is insufficient antecedent basis for this limitation in the claim. Furthermore, it is not clear if the recitation of "the initial step" refers to one of the already recited steps or if it is intended to be a reference to a step that is to precede the previously recited steps.

Claim 65, line 5, includes the recitation "said reaction product", which appears to be a reference to the "reaction product" that is recited in line 2 of claim 65. However, claim 65 is ultimately dependent upon claim 45 which also recites a "reaction product" which is a different reaction product from that recited in line 2 of claim 65. As such the recitation of "said reaction product" is indefinite because in principle, this recitation be referring to the first "reaction product" rather than the second "reaction product".

Claim 66 recites the limitation "said beam of molecules". There is insufficient antecedent basis for this limitation in the claim.

Claim 67 recites: "...wherein said molecules of said reaction gas are issued with a multi-jet supply that contains a catalyst to enhance the reaction." This reads as if the catalyst is part of the multi-jet supply unit, but if such were the case, the catalyst would

not be provided to the reaction site. The examiner notes that page 20 of applicant's specification describes supplying a catalyst with the multi-jet supply.

The phrase "relatively high" in step b of claim 68 is a relative phrase which renders the claim indefinite. Similarly, the term "high" in step f of claim 68 is a relative term that renders the claim indefinite. The phrase " relatively high" and the term "high" are not defined by the claim, the specification does not provide a standard for ascertaining their requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Because claims 47, 48, 58 and 61 are dependent upon claim 46, they too are included in the above rejection for they fail to remedy the indefiniteness of claim 46.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 45-62 and 66 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,787,783 issued to Marchman et al. (hereinafter, Marchman).

Marchman teaches a procedure for etching a sample using a focused electron beam induced chemical reaction at the surface (column 7, lines 34-38; column 8, lines 48-55).

Marchman teaches the initial reaction product is not volatile. Marchman teaches irradiating the reaction product with a second electron beam which heats the reaction product to remove the reaction product from the surface (column 9, lines 12-20. Marchman teaches the first and second (low and high energy) electron beams may both be derived from the initial primary beam. Therefore, they are generated from the same electron beam column but in order to achieve the different beam energies, they are necessarily generated by using different column settings. Marchman teaches the selecting a particular beam energy by electrically deflecting the beam through apertures (column 7, lines 16-34). Marchman teaches the second beam of electrons has a higher intensity than the first beam of electrons. Marchman teaches provides an electron current within the range of 1-20 nA (column 8, lines 33-36). Marchman teaches the repeating the process to remove subsequent layers. So, Marchman teaches before etching the second layer of the sample, the first layer etching is completed with a thermal desorption step via electron beam heating. Therefore Marchman teaches the surface of the sample to be etched is initially cleaned by thermal desorption with electron beam heating.

Response to Arguments

Applicant's arguments are moot in view of the new ground of rejection. Nevertheless, applicant's arguments with respect to Nasser-Ghodsi have been considered. Even though Nasser-Ghodsi is not presently relied upon, the examiner considers Nasser-Ghodsi to be applicable in an obviousness rejection to reject all but

claims 63-65, 67 and 68. Nasser-Ghodsi is not relied, not because applicant's arguments were persuasive, but rather because any rejection based upon Nasser-Ghodsi would be merely cumulative over the Marchman rejection set forth above.

Regarding the combination of Nasser-Ghodsi and Johnson, applicant argues that Johnson and Nasser-Ghodsi are directed to very different subject matter and with Johnson having but a single reference to the equivalence between laser heating and of electron beam heating, applicant argues one skilled in the art would not be motivated to combine the teachings Nasser-Ghodsi and Johnson. The examiner notes that a teaching of the functional equivalence between electron beam heating and laser heating is broadly applicable and readily transferable between divergent subject matter. Furthermore, with respect to applicant's argument regarding motivation, the examiner notes that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency.[1]

Allowable Subject Matter

Claim 68 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claims 63-67 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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[1] *In re Fount* 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950).

Conclusion

Applicant's amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allan Olsen
Primary Examiner
Art Unit 1792